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### Preparing Nurses in Management Positions for Bedside Care During Times of Crisis

Trevor Murray  
murraytw@yahoo.com

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**Preparing Nurses in Management Positions for Bedside Care During Times of  
Crisis**

Trevor Murray, MSN, R.N., NEA-BC, RN-BC

University of San Francisco

Committee Chair:

KT Waxman, DNP, MBA, RN, CNL, CENP, CHSE, FAONL, FAAN

Committee Member:

Robin Buccheri, Ph.D., RN, MHNP, FAAN

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## **Section I: Abstract**

### **Background**

The purpose of this quality improvement project was to increase perceived self-efficacy in performing bedside skills among nurse leaders. As the demand for nurses increased, these leaders anticipated a direct role in providing patient care in the event of a patient surge due to COVID-19.

### **Problem**

Due to the COVID-19 pandemic and Delta variant, hospital nursing leaders were and still are concerned with the challenge of providing enough competent nurses to deliver care. The DNP project prepared nurses who work in leadership roles to take or assist in taking a patient assignment.

### **Methods**

Nurse leaders attended a skills lab and procedure class. Participants completed a pre-and post-survey measuring their perceived level of self-efficacy. The project used a modified domain-specific self-efficacy scale and compared pre-and post-training mean scores.

### **Intervention**

The DNP project aimed to implement a skills and procedures training course for nurses who work in management roles to improve their perception of self-efficacy from their current perception to a statistically significant improved level of perceived self-efficacy as measured by a pre-and post-survey.

### **Results**

There was a statistically significant improvement ( $p = < 0.05$ ) for seven out of the nine tasks and an increase in the post-mean scores compared to the pre-mean scores in all nine areas.

Seven out of nine domain-specific tasks demonstrated significant change except for KPHC resources ( $p < 0.190$ ) and glucometer ( $p < 0.127$ ).

### **Conclusions**

Participation in the training increased nurse leaders' ( $n=64$ ) perceptions of self-efficacy to perform specific tasks required for patient care safely. Training that includes a skills lab and procedure course is an effective and cost-effective way to prepare nurse leaders to provide safe bedside care during a crisis.

**Keywords:** *Self-efficacy, training, pre/post survey, nurse leader, med-surg nurse, preceptor challenges, nurse well-being, resilience*

## **Section II: Introduction**

### **Background**

Due to the COVID-19 pandemic, many hospitals were concerned with a lack of supplies, equipment, staff, and space to care for the expected surge of patients, and the competency of caregivers. Morton et al. (2015) conducted a meta-analysis of 313 articles related to disaster surges. They concluded that 500 hospital beds per million people were needed along with competent staff to care for the patients in those beds. The U.S. does not have enough hospital beds or staff in some areas of the country to meet this metric for disaster surges related to the COVID-19 pandemic.

Hospital leaders were, and still are, concerned about providing adequate staff and competent health professionals to care for patients during surges (Holthof & Luedi, 2021). The project was implemented in a community hospital within a 21-hospital system in Northern California which generally supports an average census of 12 staffed ICU beds, 40 staffed telemetry beds, and 40 staffed medical-surgical beds. A surge is when a hospital experiences a rate of inpatient admissions faster than it can create bed or/and staffing capacity to care for the new patients.

The local hospital surge plan increases capacity to 66 ICU, 80 telemetry, and 80 staffed medical-surgical beds. Additional qualified nurses are needed to care for the patients who may occupy these beds during a surge. Due to a lack of traveler nurses, the organization identified local nurses who work in leadership roles as a source of additional staffing. However, these nurses may not have provided recent direct patient care and expressed concerns about their level of competency and a perceived low level of self-efficacy. Self-efficacy, which is specific to a



domain, explains how a person feels able to approach and complete specific tasks (Judge, Erez, Bono, 1998).

### **Problem Description**

Due to the ongoing COVID-19 pandemic, hospital nurse leaders were and still are concerned about a lack of qualified nurses in the event of a patient surge. Worries over a nursing shortage elicited responses from nurse leaders ranging from having “heart palpitations” to personal anxiety about carrying out the tasks that staff nurses perform every day at the patient’s bedside (Catlin, 2020). With a sudden increase in patient load, hospital nurse leaders could expect to be called on to provide direct patient care. Nurse leaders—assistant nurse managers, nurse managers, directors, house supervisors, and quality nurses—while focused daily on the organization’s provision of safe, high-quality care, may not have cared for patients directly for many years.

Perceived self-efficacy is concerned with people's belief in their ability to produce specific attainments (Bandura, 1986). Self-efficacy has a crucial role in human functioning, affecting behavior directly and influencing other determinants, such as goals and aspirations, outcome expectations, and perceptions of impediments and opportunities. In the context of COVID-19 and a potential patient surge, nurse leaders' perceived efficacy to perform as required is essential to delivering safe, high-quality patient care. This quality improvement project investigated changes in perceived effectiveness in response to skills training as a measure of readiness to provide direct patient care in the event of a COVID-19 patient surge.

### **Setting**

The DNP project was completed in a 178-bed community hospital located in the Bay Area of Northern California. The project was approved in this setting by the local COVID-19

command center, which included hospital leadership and infection prevention approval. In April 2020, the hospital was on lock-down for COVID-19. All in-person meetings were canceled to respect the new physical distancing guidelines set forth by the Centers for Disease Control and Prevention (CDC). This project proceeded despite the pandemic by making several safety accommodations. Empty conference rooms provided ample space to safely conduct the skills and procedures class with physical distancing of at least six feet at all times. Hospital employees were required to wear masks, hand sanitizer was provided at the entrances and between all touchpoints and the equipment was wiped down after each participant practiced a task. Class sizes were kept small and were held over several weeks to respect physical distancing and adherence to safety precautions.

### **Specific Aim (Purpose)**

The DNP project aimed to increase the nurse leaders' perception of domain-specific self-efficacy by improving the post mean scores compared to the pre mean scores for specific nursing tasks by a statistically significant amount ( $p < 0.005$ ).

### **Available Knowledge**

#### **PICO(T) Question**

A PICOT (population, intervention, comparison, outcome, timeframe) question was developed to frame and guide a systematic search and critical appraisal of available evidence: In nurses who work in leadership roles which include those in all levels of management, quality, and education (P), how does attending a skills lab and procedure class (I), when compared to no intervention (C), affect their perception of self-efficacy when taking an assignment or assisting with bedside patient care (O) over six months (T)?

## **Search Methodology**

The initial search methodology was conducted in CINAHL online database through Gleeson Library. The Boolean search term used was "self-efficacy" between 1982 – 2020, searching all source types. The results revealed a return of 31,901 publications. The search was narrowed using the search terms "self-efficacy" and "crisis," limiting the search to the years 2015 – 2020 and limiting the source type to academic journals and dissertations. This search strategy revealed a return of 64 articles. Next, a search was conducted using the same parameters, altering the search terms to "self-efficacy" and "disaster," which yielded 57 results. Finally, using the search terms "crisis" and "training," and "pre/post survey" yielded 12 results. The evidence was narrowed by only including the articles that explored interventions on improving nurse's self-efficacy and studies that were at least a quality rating of B and level III or better using the Johns Hopkins Nursing Research and Evidence Appraisal Tool (Dang & Dearholt, 2018) (See Appendix A: Evidence Evaluation Table).

## **Integrated Review of the Literature**

Nurses who work in leadership roles report experiencing heightened anxiety when they are notified they may need to take direct patient care assignments if surges occur during the current pandemic. In order to lessen anxiety for these nurse leaders, the intervention of a skills lab and procedures training class was identified to improve their perceptions of self-efficacy. The following integrated review provides evidence from the literature to support the intervention. Several peer-reviewed journal sources cite improvements in the perception of self-efficacy following a formalized training program.

### ***Self-Efficacy***

Perceived self-efficacy is concerned with people's belief in their ability to produce specific attainments (Bandura, 1986). Self-efficacy has a crucial role in human functioning, affecting behavior directly and influencing other determinants, such as goals and aspirations, outcome expectations, and perceptions of impediments and opportunities. In the context of COVID-19 and a potential patient surge, nurse leaders' perceived efficacy to perform as required is essential to delivering safe, high-quality patient care. This quality improvement project investigated changes in perceived efficacy in response to skills training as a measure of readiness to provide direct patient care in the event of a COVID-19 patient surge.

General self-efficacy is a person's perception of their ability to perform in various situations, while domain-specific self-efficacy is one's ability to perform specific tasks (Louthans & Youssef, 2007). Domain-specific self-efficacy can be improved by providing training and education that mimics the environment where the skill is completed and through repetition of a task (Ludwigson, Boin & Oster, 2020). Nurse leaders who could be "called into action" to provide direct patient care need to be confident in their ability to routinely complete bedside nurses' tasks. Routine tasks requiring specialized equipment and technology may impose self-efficacy doubts on nurse leaders who have become unaccustomed to using them. A selection of such tasks is presented in Appendix B: Patient Care Tasks for Nurse Leaders.

### ***Training Programs that Improve Self-Efficacy***

All of the following articles were critically appraised and their ratings are listed in the Evaluation Table. See Appendix A. Bragard et al. (2018) conducted a longitudinal study to evaluate whether a two-day training program for eleven pediatric and five emergency medical residents impacted perceived stress and self-efficacy in technical and non-technical skills. The

intervention was measured using a pre-and post-survey self-efficacy tool three times: before, after, and six weeks after the course. The authors found that the training reduced the stress perceived by the participants and improved the residents' self-efficacy. There was a statistically significant improvement in self-efficacy immediately after the training ( $p < 0.001$ ) and at six weeks ( $p < 0.001$ ). The findings contributed to the authors' decision to create a formal training course that must be completed before admission to the residency program. The worth of practice is evidence that this training program can improve self-efficacy for participants, and self-efficacy can be effectively measured by a pre-and post-survey tool.

Mohatt et al. (2017) conducted a comparative outcomes pilot study to explore how adopting an evidenced-based Mental Health First Aid (MHFA) program improved awareness of mental illness, decreased stigma, and increased confidence of the general population to help those who have mental illness and the rate of referring those in need of help. The authors used a survey tool to measure stigma, awareness of resources, confidence in helping, beliefs related to seeking help, and current utilization of mental illness resources immediately before and after the class, four months after the class, and eight months after the class. They found that participants experienced a meaningful and substantial improvement in stigma ( $p < 0.05$ ,  $\eta^2 = 0.16$ ), confidence ( $p < 0.05$ ,  $\eta^2 = 0.49$ ), knowledge ( $p < 0.05$ ,  $\eta^2 = 0.39$ ), and behaviors ( $p < 0.05$ ,  $\eta^2 = 0.27$ ). The authors concluded that the comparative outcomes pilot study of MHFA and military personnel indicated that the intervention could be spread to community-based first responders and among the National Guard Armories. The worth to practice is evidence that a formalized training program about adopting an evidenced-based MHFA program improved stigma, confidence, knowledge, and behavior outcomes. Some form of a pre-and post-survey tool was valuable in measuring this intervention.

McLaughlin et al. (2015) conducted a mixed-methods study to explore how exposing students to a Medication and Reconciliation Team (SMART) program can improve student learning. Volunteers of 22 second-year pharmacy students were randomly selected to participate in a training program followed by three 5-hour scheduled evening shifts. Pre/post surveys and reflection statements were collected. The authors found improved self-efficacy ( $p < 0.05$ ) and positive perceptions of the SMART program. The authors concluded that the training program increased student appreciation of pharmacists' multiple roles and that early clinical training improves students' development and learning. The worth to practice of this study is evidence that this training program can improve self-efficacy, and the use of a pre-and post-survey tool was valuable in measuring this intervention.

Sparks et al. (2017) conducted a pre-post intervention pilot study with 15 mid-level surgical residents to determine whether competencies improved using a more anatomically realistic simulation versus a traditional simulation mannequin or "SimMan." The authors found notable improvement in teamwork skills during their pre/post educational intervention that offered a simulation-based class for midlevel surgical residents. Teamwork skills were measured using several instruments, including a self-efficacy survey tool. The authors found that using the more anatomically correct mannequin led to a higher gain in teamwork skills (95% CI,  $-8.51$  to  $6.71$  versus 95% CI,  $-1.70$  to  $0.49$ ). They concluded that using medium-fidelity anatomically correct mannequins was as effective as using deceased donors and a SimMan to improve teamwork skills. The worth to practice of this pilot study is evidence that this training program that includes more practical skills and procedures can improve teamwork skills. This evidence will help inform the choice of skills and procedures chosen for the DNP project's intervention.

Coppens et al. (2018) conducted a randomized controlled trial using a convenience sample of 116 undergraduate nursing students to explore whether integrating a course on crisis resource management principles and team debriefings in simulation training increases team efficacy, self-efficacy, and technical skills. The 60 undergraduate nursing students in the intervention group completed a class on crisis resource management, a program on simulation training, a team debriefing, and another training on simulation. The 56 nursing students in the control group only participated in two simulation training classes. The intervention group increased self-efficacy (2.13%,  $p = .02$ ) and team efficacy (9.92%,  $p < .001$ ); the control group only improved in team efficacy (4.5%,  $p = .001$ ). The authors concluded that combining the course and simulation was found to be more effective in improving self-efficacy than having no course. The worth to practice of this study is evidence that this training program can improve self-efficacy.

Kılıç and Şimşek (2019) conducted an experimental randomized control study to explore how first aid training impacts the perception of self-efficacy and disaster preparedness. The study, which included 38 nursing students in the control group and 38 students in the intervention group, identified that those in the intervention group had a statistically significant improvement in the perception of self-efficacy and disaster preparedness ( $p=0.015$ ). The authors concluded that the first aid education intervention improved the students' perception of general self-efficacy. The worth to practice of this study is evidence that this training program can improve self-efficacy.

Smith et al. (2015) conducted a study to explore the effect of teaching a day-long disaster training class for 66-nursing students on emergency preparedness self-efficacy. During an analysis of the pre-and post-survey, the authors found that providing the course decreased the

mean score for every student from 148.92 (SD, 40.77) to 113.94 (SD, 33.40), indicating an increase in the perception of emergency preparedness self-efficacy. The authors concluded that creating competencies related to disaster planning will improve our nurses' quality and safety during a crisis. The worth to practice of this study is evidence that this training program can improve self-efficacy and potentially the safety and quality of care patients receive during a crisis such as a global pandemic.

Jonson et al. (2017) conducted a quantitative experimental group method study to determine if computer-based simulation training can increase emergency department charge nurses' initial incident management skills and specific and general self-efficacy. Using a pre-and post-survey, the authors found training improved the charge nurses' general, but not their specific self-efficacy. They concluded that the computer-based simulation training provided opportunities for charge nurses to increase their general self-efficacy. The worth to practice of this study is evidence that this training program can improve self-efficacy, and the pre-and the post-survey tool was valuable in measuring the intervention.

Li-Ling, Wen-Hui, and Suh-Ing (2015) explored in their randomized control trial how a conventional class compared to a scenario-based simulation class in communication training affected nurses' self-efficacy, performance, and communication competency of 116 nurses. After measuring the intervention using a pre-and post-survey, the authors found that both the conventional class and the scenario-based simulation improved the nurses' self-efficacy, performance, and communication competency. Scenario-based training resulted in more significant self-efficacy, performance, and communication competency gains than the conventional class. Li-Ling, Wen-Hui, and Suh-Ing (2015) concluded that simulation-based training could improve nurses' communication self-efficacy and performance. The worth to



practice of this study is evidence that this training program can improve self-efficacy and communication among nurses.

Johnson-Toro (2017) conducted a DNP study to examine how preparing public health nurses (PHNs) for disaster can improve standardization and self-efficacy. They found that PHNs can be adequately prepared to be first responders during a crisis by implementing standardized triage procedures and disaster training. The author used a pre-and post-test to measure the intervention and found an increase in self-efficacy related to disaster preparedness; mean self-efficacy increased from pre-training (55.63=45%) to post-training (84.29=67%). The author achieved the goal to obtain a rise in the mean score of 20% or greater and concluded that PHNs who participated in the DNP project improved their disaster through participation in the training. The worth of practice of this DNP project is evidence that this training program improves self-efficacy, and the pre-and the post-survey tool was valuable in measuring this intervention.

Bragard et al. (2018) concluded that short, domain-specific training programs have been shown to improve perceived self-efficacy. A two-day training program for medical residents in technical and non-technical skills demonstrated decreased perceived stress and increased self-efficacy; results were sustained six weeks after training. For nursing students who participated in a one-day simulation-based crisis resource management course, perceived self-efficacy to provide patient resuscitation increased with the most substantial learning effect and most significant increases for students who began the course with the lowest self-efficacy scores. Pre- and post-test exploratory studies have demonstrated the efficacy of skills-based simulation in improving the self-efficacy of healthcare providers (Coppens et al., 2018; Verhaeghe et al., 2015; Jonson et al., 2017; Sparks et al., 2017). In an experiential learning program similar to the skills and procedure class used in this project, healthcare providers

demonstrated positive learning outcomes; formal training programs identical to the intervention for this quality improvement project have been shown to improve self-efficacy for disaster preparedness (McLaughlin et al., 2015; Smith et al., 2015; Johnson-Toro, 2017; Kılıç & Şimşek, 2019). The similarities between preparing for disasters and a pandemic surge suggest the appropriateness of traditional, domain-specific skills and procedure training for nurse leader readiness to provide direct patient care.

### **Summary/Synthesis of the Evidence**

Short, domain-specific training programs have been shown to improve perceived self-efficacy. A two-day training program for medical residents in technical and non-technical skills demonstrated decreased perceived stress and increased self-efficacy; results were sustained six weeks after training (Coppens et al., 2018). For nursing students who participated in a one-day simulation-based crisis resource management course, perceived self-efficacy to provide patient resuscitation increased with the most substantial learning effect and most significant increases for students who began the course with the lowest self-efficacy scores. Several exploratory studies that used pre-and post-test evaluation demonstrated the efficacy of skills-based simulation in improving the self-efficacy of healthcare providers (Hsu et al., 2015; Jonson et al., 2017; Sparks et al., 2017; McLaughlin et al., 2015). Healthcare providers demonstrated positive learning outcomes in an experiential learning program similar to the skills and procedure class used in this project. Formal training programs identical to the intervention for this quality improvement project have improved self-efficacy for disaster preparedness. (Smith et al., 2017; Kılıç & Şimşek, 2019). The similarities between preparing for disasters and a pandemic surge suggest the appropriateness of traditional, domain-specific

skills and procedure training for nurse leaders to improve their readiness to provide direct patient care.

### **Rationale**

The social cognitive theory (SCT) helps to guide and provide structure to answering the PICO(T) question in nurses who work in management roles which include assistant nurse managers, managers, directors, and house supervisors how does attending skills and procedure class compared with no class affect their perception of self-efficacy? For some nurse managers and directors, returning to the bedside to provide direct patient care, this causes stress and anxiety as they may not have used the skills needed to provide direct patient care for several years. The intervention of the DNP project focuses on improving the perception of self-efficacy of the project's target population by using the SCT concepts of self-efficacy and reinforcement.

Moudi et al. (2016) summarized the SCT defined and developed by Dr. Albert Bandura, "as a cognitive process of understanding one's capacity to control motivations, thought processes, emotional states and social environments in performing a particular behavior." Most importantly Moudi et al. (2016) note that "individuals refuse to face situations they are not able to effectively cope with, and they seek the situations they can successfully overcome." If the project's target population refused to take a patient assignment during a high patient surge, the results could be catastrophic. Therefore nurses who work in management roles must be given adequate training in order to improve their perception of self-efficacy to care for patients at the bedside in times of crisis such as the current COVID-19 pandemic.

The SCT framework helped identify variables that were measured in the project. Ring and Kavussanu (2018) found that self-efficacy and self-control statistically impacted illegal

performance-enhancing drugs via moral disengagement. The authors found that self-monitoring, self-efficacy, and reinforcement are essential elements in determining if a sustained behavioral change will be successful. For the intervention to succeed, a sustained behavioral change due to an improved perception of self-efficacy needs to occur.

### **Section III: Methods**

#### **Context**

In March 2020, the healthcare leaders in the hospital where the DNP project took place, like many healthcare leaders across the country, were following the evolving situation of COVID-19 in Italy. The hospitals were overrun with patients, and there were not enough staff to care for the surge of patients. Hospital leaders in this hospital were committed to preparing for and preventing a similar situation. One of the potential solutions was to prepare available nurses not currently working at the bedside to assist or provide direct patient care during a patient surge due to COVID-19.

Organizational support and sponsorship for the project via executive-level approval were critical to ensuring the project's success. Without this support in place, the project would have encountered crippling barriers. Executive-level approval was also necessary to ensure that the project aligned with the business and strategic goals of the organization. Non-research determination approval was obtained before the start of the project (Appendix C: Signed Statement of Non-RDO Form). Also, permission was obtained locally from the physician in charge (PIC), chief of staff, and the Chief Nurse Executive (CNE) (Appendix D: Organization Letter of Support). It was essential to include other leaders who are stakeholders so that barriers were not encountered later, such as the Chief Operating Officer (COO), who is in charge of space such as conference rooms needed for the training, the Administrative Services Director, who is in charge of the staffing office in case staff are required to assist with the training and the service line directors for the same reasons.

## **Intervention**

Nurse leaders attended a four-hour skill and procedure class, which focused on teaching the nine skills and procedures listed in Appendix B: Patient Care Tasks for Nurse Leaders. The skills and procedures were chosen based on a risk assessment and a review of the literature. The skills and procedures selected are commonly performed by nurses and are high risk if not executed correctly. The skills and procedures were divided into six stations, which were taught in separate conference rooms. Participants rotated between the different conference rooms in small groups. If nurse leaders desired additional time, they could repeat a station to their satisfaction. The skills were taught by nurse educators and clinical nurse specialists (CNSs). Adult learning principles were taken into consideration when conducting the classes. Returned demonstration by the participants to the educators and CNSs demonstrated competence.

## **Gap Analysis**

Many of the nurses who work in the quality department and management roles may lack the self-efficacy to assist or provide direct patient care at the bedside due to their long hiatus from the bedside. The pre-intervention data collection tool for the project, Nurse Leader Training Self-Efficacy Tool, also served as the gap analysis measurement tool (Appendix E: Data Collection Tool: Nurse Leader Training Self-Efficacy Tool) and helped create the gap analysis grid (Appendix F: Gap Analysis). The survey revealed low pre mean scores indicating that this population could benefit from the proposed intervention, a skills lab and a procedure class.

## **Gantt Chart**

The project implementation included three major phases: project planning, implementation of the intervention, post-implementation assessment, and analysis which led to

the spread and then a repeat of the project planning, implementation of the intervention, and post-implementation assessment and analysis (Appendix G: Gantt Chart).

### **Work Breakdown Structure**

The work breakdown structure (WBS) was completed during the project's planning stage and is a layout of all the tasks in the project (Kaufman, 2005). The WBS of the DNP project is a valuable tool used to communicate the various levels and components of the project (Appendix H: Work Breakdown Structure). Identifying each level and part is necessary to ensure that essential elements are not omitted.

#### ***WBS Level I***

The first level is the project's title, which combines the project's aim and intervention: Nurse Perception of Self-Efficacy Following Participation in a Skills and Procedures Course. The first level informs the reader of the project's intent.

#### ***WBS Level II***

The second level of the WBS includes: (a) executive-level approval, (b) finance/budget, (c) stakeholders, (d) education plan, and (e) evaluation. The first step was to create an education plan to gain agreements on the necessary components of the plan and identify the project's implementation time. It was important to include specific stakeholders in this planning step. Using performance improvement (P.I.) methodology, the course content was created in consultation with the participants to gain the voice of the customer. The customers or course participants were those people listed in the aim statement. Those involved with teaching the content were the content experts who needed to be included. For this project, the content experts are the educators and clinical nurse specialists. The education plan drives the cost (finance/budget), and the completed plan must be submitted for executive level and stakeholder

approval. The components of the education plan are listed in the WBS under the second-level header, *Education Plan: Nursing Skills and Procedures* (Appendix H: Work Breakdown Structure). Budget and finance approval was obtained for this project. Details are further discussed in the below section: Budget and Financial Analysis.

### **Responsibility/Communication Matrix**

A communication plan was established to effectively communicate with project stakeholders (Appendix I: Responsibility/Communication Matrix). Permission to develop the project was initially obtained from the Chief Nurse Executive. The curriculum plan and training schedule was established with the nurse educators and nurse leaders. Participants were scheduled for the classes in small groups to allow social distancing and adhere to the CDC's guidelines. The DNP committee chair was appraised of the project and its progression. Local leaders were updated through the local COVID command center reports.

### **SWOT Analysis**

A SWOT (strengths, weaknesses, opportunities, and threats) analysis of the current state was developed to overview the project's strengths and opportunities (Appendix J: SWOT Analysis). Identification of potential weaknesses and threats helped to aid in the project's success.

Strengths included organizational support and resources in terms of educators and equipment to support the proposed intervention. The skills lab and procedure course were identified in the gap analysis as highly desired by the participants and organizational leaders to prepare for sufficient nurse staffing during a potential surge of patients due to COVID-19.

Opportunities included pressure to increase qualified nursing staff to provide safe patient care in the event of a surge. Many of the standard external options, such as hiring additional



traveler nurses, were not guaranteed, so a local solution was needed. There was a call for innovative ways to increase the availability of qualified nurses.

### **Budget and Financial Analysis**

The actual cost of the intervention, which mainly included the salaries of the clinical education director and nurse educators, was \$60,840.00 (Appendix K: Budget and Financial Analysis). The cost of nurse leader turn-over is \$118,500.00, which includes recruitment and training. The cost avoidance of not losing one nurse leader is the expense of recruitment and training, \$118,500.00 minus the salaries mentioned above, \$60,840.00, equals \$57,660.00. Some nurse leaders voiced concerns about taking or assisting in taking a patient assignment. The project's intervention helped to improve retention by improving nurse leaders' level of self-efficacy. Retention prevented the need to replace with a traveler. While travelers are scarce, the organization did offer an average rate of \$212.50 for "crisis travelers" to cover medical-surgical assignments. It's important to note that no nurse leaders departed the local hospital.

Remembering earlier that nurse leaders are concerned about their level of self-efficacy to care for patients at the bedside after a long hiatus. Some nurse leaders considered leaving their roles and the profession altogether when confronted with the reality of returning to the bedside ill-prepared and potentially causing harm to a patient. Catlin (2020) described one nurse leader stating they had heart palpitations at the thought of a severe nursing shortage. Therefore, the cost avoidance is calculated by multiplying the cost of replacing four nurse leaders by the cost of nurse leader turn-over \$118,500, which equals \$474,000. In addition, retention of new leaders prevents the need to replace with an expensive crisis traveler who costs an average of \$442,000.00 annually. A feasible project requires a ratio greater than one. Dividing the annual ROI of \$916,000.00 by the total annual expenses of \$71,540 equals a ratio of 1:12.8.

### **Study of the Intervention**

The intervention was chosen after a careful review of the literature. Many of the reviewed studies in the Evidence Table used a training program to improve the target audiences' self-efficacy. A well constructed training program that meets the needs of the learner, such as a skills and procedures course, was shown in the literature to improve self-efficacy. A validated pre-and post-survey was the most common and best tool for measuring whether there was a difference in self-efficacy. The intervention was evaluated using a modified domain-specific self-efficacy scale, the Nurse Leader Training Self-Efficacy Tool (NLTSET), shown in Appendix E. The NLTSET measured the nurse leaders' perception of their ability to perform nine skills and procedures (see appendix B: Patient Care Tasks for Nurse Leaders). The tool was modified from a domain-specific scale for extracorporeal membrane oxygenation circuitry self-efficacy, the ECMO Circuit Self-Efficacy Scale (ECSES) developed by Ludwigson, Boin, and Oster (2020). Both the ECSES and the NLTSET are self-administered tools that measure the strength of an individual's sense of domain-specific self-efficacy. The instrument took approximately two to three minutes to complete. The NLTSET was administered pre and post-attendance at the 4-hour skills and procedures class. This was the approach used to establish the impact of the intervention. Statistical analysis was performed using SPSS 25 software. Mean pre and post NLTSET scores were calculated and compared using paired t-tests for each specific skill and procedure. Significance was set at  $p < .05$ . This was the approach used to establish whether the observed outcomes were due to the interventions.

### **DNP Project's Relevance to Informatics**

The American Nurses Association (ANA) defines nursing informatics (N.I.) as "the specialty that integrates nursing science with multiple information and analytical sciences to identify, define, manage, and communicate data, information, knowledge, and wisdom in nursing practice" (ANA, 2015, p.1-2). The DNP project is relevant to informatics as it follows the conceptual framework for studying nursing knowledge as described by Graves and Corcoran (1989) in their seminal work. Graves and Corcoran (1989) laid the current foundation and building blocks for the current state of nursing informatics by detailing the relationship between data, information, and understanding put forth by Blum (1986), who defines data "as discrete entities that are described objectively without interpretation, information as data that are interpreted, organized or structured and knowledge as information that has been synthesized so that interrelationships are identified and formalized" (Graves & Corcoran, 1989, p.227).

The DNP project gathered data using a pre-and post-survey (see appendix E: Nurse Leader Training Self-Efficacy Tool). Next, the data was organized in an Excel spreadsheet and interpreted after running the data through specific parameters using the SPSS Statistics 25 software program to gain information. Knowledge was synthesized from the information to identify and formalize relationships (see Appendix L: Domain-specific self-efficacy paired samples test). In addition to data, information, and knowledge, the concept of wisdom in N.I. also adds to the DNP project's relevance to informatics.

The ANA (2015) defines wisdom in N.I. as the appropriate use of knowledge to manage and solve human problems. The ELDNP project's most significant relevance to N.I. is that it used the knowledge gained by the results of the statistical analysis (see Appendix L) to confirm that

the training program helped solve the problem of preparing nurse leaders to potentially accept or assisting in taking a patient assignment during the COVID-19 pandemic. The project director, working closely with hospital leaders, used wisdom, health care experience, evidence from the literature review, and the advice of experts to define the problem, design an intervention, and implement and evaluate the intervention.

### **The Importance of Informatics**

Informatics is essential to the DNP project because it helped explain and validate the information gathered in the paper's results section. Informatics helped make the case that the ELDNP project's intervention improved the perception of self-efficacy of nurse leaders by comparing the results of the pre-and post-surveys.

### **Outcome Measures**

The outcome measure for this project, perceptions of self-efficacy, was used to determine the effect of the intervention (participation in an evidence-based skills lab and procedures course) on nurse leaders. The instrument used to measure self-efficacy was the NLTSET (see appendix E: Nurse Leader Training Self-Efficacy Tool).

### **Rationale for Choosing Pre- and Post-Survey**

After reviewing ten articles related to evaluate this project's intervention, improving self-efficacy, it became apparent that the majority of the authors supported using a pre-and post-survey. Ten studies whose aim was to improve self-efficacy used a pre-post measurement tool (Bragard et al., (2018); Mohatt et al., (2017); McLaughlin et al., (2015); Sparks et al., (2017); Coppens et al., (2018); Kilic & Simsek (2019), Smith et al., (2015); Jonson et al., (2017); Li-Ling et al., (2015); and Johnson-Toro (2017).

### **Validity and Reliability of Survey Instrument**

The validity of the NLTSET was determined for this project using a two-stage process described by Lynn (1986) that includes rigorous instrument development practices and quantifies the aspects of content validity. The instrument was reviewed by nine expert registered nurses who were selected based on their experience of five years or more as nurse educators and leaders in clinical education. The experts were all director level or equivalent who have earned the degree of MSN, DNP, or Ph.D. in nursing. Experts evaluated the items for content validity and clarity. The experts were asked to rate the clarity and relevance of each item using the index of content validity (CVI), a 4-point ordinal rating scale (4 = very relevant and succinct, 3 = relevant but needs minor revision, 2 = unable to assess or in need of considerable revision, and 1 = not relevant). The expert nurses scored all items as being either very relevant and succinct (scored 4) or relevant but needed minor revision (scored 3) except for one expert who scored it a 2. According to Lynn (1986), "when six or more experts are used, one or more can be in disagreement with the others, and the instrument will be assessed content valid" (p. 383). The CVI for the NLTSET is above the threshold established by Lynn. SPSS 25 software was used to calculate a Cronbach's alpha of 0.954 for the NLTSET indicating a high level of internal consistency.

### **Description of the Approach – Design Features**

The contextual elements that contributed to the success, efficiency, and cost-effectiveness of the intervention included effective communication and collaboration with the local healthcare team members. The DNP project was innovative because it addressed how to increase the shortage of nurses when all traditional levers had already been pulled and there was no nurse labor pool safety net. When faced with strikes or other scarcity of nurses, the

organization has turned to other parts of the country to recruit crisis travelers, at a cost of up to \$300 per hour in some cases, to cover the gap in available nurses. For the first time in the organization's history, the organization potentially needed to turn inward to call on all available nurses to take a patient assignment, and this required an innovative skills and procedures class to meet the unique needs of solid nurse leaders who needed to exercise atrophied bedside nursing skills. For some, these skills may have not been used in over twenty years.

The innovation started with a review of the literature. While the literature provided sound advice on using training as an intervention and measuring the intervention in the form of a pre- and post-survey, it did not address nurses' unique curriculum development needs in this particular situation. Stakeholders, including the expected participants, educators, and quality nurses, were all pulled together to create the design. This is because stakeholder analysis is the first step in stakeholder management, an essential process that successful people use to win support from others.

Implementing Watson's (2008) Creative Process number seven, meeting learners where they are, the nurse leaders were asked to describe what tasks and experiences they needed to improve their self-efficacy to provide safe bedside care during the pandemic. Reviewing the literature and onboarding documents helped identify what tasks the skills and procedure class should teach. The following skills were reviewed and taught in this acute care in-service course: large volume IV pump, glucometer, how to chart in the electronic medical record and correctly use the medication administration record, bar code scan medications and blood, and safely administer blood and high alert medications.

A pre-and post-survey was used to measure the results and determine whether there is an improvement in nurse leader self-efficacy.

The ability to innovate is represented by continuously transforming knowledge and ideas into new products, processes, and systems to benefit both the organization and the shareholders (Popa et al., 2010). This project is innovative due to its ability to meet the unique needs of the organization and the shareholders, nurse leaders, to help them prepare to return to the bedside during a pandemic in a short amount of time. Typically, a skills and procedure class geared towards nurse leaders involves managing and auditing many travelers who come to our organization during a work stoppage. What is unique, different, and innovative is that there were no nurse travelers or other nursing resources available, so the creative project chose to quickly meet the stakeholder's needs by improving self-efficacy in performing skills needed to provide bedside care.

### **Leadership Approach**

The DNP project focused on implementing a skills and procedure course that improved nurse leaders' self-efficacy to take or assist in taking a patient assignment. The Quantum Caring Leadership conceptual framework guided my project's implementation by fostering health and caring-healing. Developing a training course that unifies the nurse leaders' skills, knowledge, and desire to care for others promoted patient safety and quality of care. As everything in the organization is connected, the project had positive ripple effects that improved the nurse leaders' self-efficacy and, in turn, rippled out to patients. The principles of leadership, management, decision making, and collaboration were all used to meet the learners where they were, listen to their concerns and fears in order to collaborate on a training plan, and ultimately lead and manage the project using a caring

approach. I used these practices to address the inpatient population's health needs by providing training to nurse leaders who can now offer high-quality, safe care after attending the project's intervention. The concepts from the conceptual framework helped develop my leadership approach and implement this innovative project to improve patient care outcomes by providing qualified nursing staff during a crisis.

### **Stakeholder Analysis**

Stakeholders involved in the project implementation included legal, risk, and compliance, human resources leader, area quality leader, hospital's chief operating officer, chief nurse executive, my DNP chair, educators, physician-in-charge, the physician in chief, the nurse leader program participants, the COVID command center leaders, and represented nurses. (see Appendix M: Power/Interest Grid for Stakeholder Prioritization). The stakeholders had various perspectives which could impact implementation. An effective strategy was needed to connect with stakeholders.

The type and length of interaction with stakeholders depended on where they were placed on the power versus interest grid. Stakeholders in the lower-left corner who had lower power and interest in the project required monitoring and smaller amounts of time to manage. Examples of these stakeholders included the COVID-19 command center leaders not listed in the other grid areas.

Those with higher interest but not executive-level power over the project included the bedside or represented nurses. It was essential to keep these stakeholders continuously informed as the project developed to prevent any barriers to successful implementation.



Following were those stakeholders who had high power and low interest. These included the legal, risk, and compliance team, the human resources leader, and the area quality nurse leader. It was essential to keep them satisfied through routine updates and ensure that any concerns were addressed promptly. Their power level could create immediate and devastating barriers to successful implementation.

Finally, the stakeholders with high amounts of power and interest required close management and the most investment of time. These stakeholders included the Chief Operating Officer, Chief Nursing Officer, DNP chair, the educators who designed and taught, the Physician-In-Charge, Physician-In-Chief, and the nurse leaders who participated in the program. The plan to influence the culture to make it open and receptive to change included frequent stakeholder meetings early in the process that sought the feedback and opinions of stakeholders. Stakeholders who were engaged and felt that their views were heard were more likely to be supportive. Similarly, Romme et al., (2020) found that fostering person-centeredness was one of the factors that helped improve outcomes. By focusing on the needs and interests of the stakeholders, barriers could be better anticipated or avoided altogether.

### **Anticipated Barriers**

Anticipated potential barriers during the implementation included time constraints. Even though local leadership supported the project, CDC guidelines for social distancing severely restricted how many people could be safely accommodated in a conference room for the training. This meant more training needed to be offered, which required more time. This required educators to provide additional classes over more days, taking them away from their usual work for more extended periods.

The plan to mitigate the barriers was based on leadership theory. Engaging the educators early in the process, seeking their feedback, and hearing their needs helped remove obstacles. The strategy was to sell the importance of the innovative project so the educators would be willing to invest their time and energy to improve the self-efficacy of the nurse leaders. By linking the passion of teaching and the urgent, burning need to create this innovative curriculum which enhanced the nurse leaders' ability to safely return to the bedside to provide or assist in providing direct patient care during a time of urgent need helped the educators understand how their work was and is essential. Helping the educators understand the need to have an increased labor pool to provide safe patient care helped motivate and focus their time on this innovative project. Motivating is part of mobilizing, the final step in de Jong et al., (2015) eight essentials of innovation where prioritizing people, enabling structures, supporting the culture, and learning and adapting helped to ensure the project's success.

Systems thinking informed the plan by understanding the roots of people's behavior or what motivates them. The nurse leaders were understandably uncomfortable about returning to the bedside after a long hiatus. The project's innovative intervention addressed their concerns and improved patient safety. The educators who were part of the curriculum design and project implementation team were asked to pivot quickly. They had to stop what they were doing and focus their attention and time on the project's intervention. Using systems thinking, it was easier to understand the motivations of the educators and inform the plan to motivate them to focus on the project by appealing to what interested them to their role in the first place: educating others to new and exciting topics, especially during a time of need to improve patient care.

## **Building Momentum**

Ongoing support for the project was achieved by building a change platform, not a change program. Hamel and Zanini (2014) discussed how change cannot be sustained "without genuine commitment on the part of those who will be most affected." Involving the nurse educators and the nurse leaders early in the development of the project helped ensure that the project was successful.

The plan to spread the word about the value of this innovative project included meeting with the stakeholders listed in power versus interest grid (see appendix M). The amount of time spent with stakeholders depended on their level of power and interest; the higher the level of power or interest, the more time invested in talking about the value of the project's intervention. Negotiation strategies such as active listening, incorporating feedback from stakeholders, and as Hamel and Zanini (2014) stated, "foster honest and forthright discussion of root causes and, in the process, develop a shared view of the thorniest barriers."

## **CQI Method and Data Collection Tool**

The continuous quality improvement (CQI) method is a deliberate, defined process focused on improving population health. The model for improvement used to provide a framework for this DNP project was the Plan, Do, Check, Act (PDCA) cycle.

A modified domain-specific self-efficacy scale, the NLTSET, shown in appendix C, was used to measure the nurse leaders' perception of their ability to perform nine tasks (See Appendix B). The tool was modified from a domain-specific scale for extracorporeal membrane oxygenation circuitry self-efficacy, the ECMO Circuit Self-Efficacy Scale (ECSES) developed by Ludwigson, Boin, and Oster. Both the ECSES and the NLTSET are self-administered tools that measure the strength of an individual's sense of domain-specific self-

efficacy. The instrument takes two to three minutes to complete. The data collection instrument was validated using Lynn's (1986) content validity index method.

## **Analysis**

### **Ethical considerations**

The study began in April 2020 upon receipt of approval from hospital administration and the organization's Institutional Review Board Research Determination Office. It was determined that the project did not meet the regulatory definition of research involving human subjects and is not a research study. Participant confidentiality and anonymity were assured.

Participants were advised verbally and in writing on the survey instrument that participation in the study and completion of the pre-and post-surveys were voluntary. They were also given the option to attend the training and not complete the project's surveys. Instructions on completing the survey instruments were presented at the beginning and again at the end of the skills and procedure class. Participants were advised of the option to skip items on the survey. The pre-survey had a number written on the back to enable pairing with the post-survey for comparison. No names or other identifiers were used that could associate the survey with a specific participant. All data is reported in aggregate.

### **ANA Code of Ethics**

The American Nurses Association (ANA) Code of Ethics for Nurses with Interpretive Statements, Provision 5, recognizes the moral and ethical necessity that nurses owe "the same duties to self as to others, including the responsibility to promote health and safety, preserve wholeness of character and integrity maintain competence, and continue personal and professional growth" (ANA, 2015, p.19). This provision relates to the DNP project as it calls

upon nurse leaders to renew their bedside competency in order to care for patients during a time of crisis.

### **Jesuit Values**

The DNP project aligned well to support core Jesuit values, tending to the whole person; uniting the mind and heart. When a nurse feels ill-prepared and has a low level of self-efficacy due to lack of practice or training, this puts the patient at risk. By improving the nurses' perception of self-efficacy, the nurse can now support the patient by tending to the whole person.

The DNP project focused on improving the perception of self-efficacy of nurse leaders to take or assist in taking a patient care assignment during the recent pandemic. The intervention measured nurse leaders' perception of self-efficacy before and after taking a skills and procedure class. The following discussion will state how the DNP project meets each ethical principle of beneficence, autonomy, veracity, and justice. Beneficence is the obligation of healthcare providers to help people in need, provide benefits, and balance the benefits against the risks. An example is when a person or organization believes it knows what is best for others. The DNP project meets the ethical principle by providing a skills and procedure class to nurse leaders to improve their perception of self-efficacy to take a patient assignment during a crisis. In this case, the organization and project leader, myself, believe that the time spent doing the skills and procedures class is vital for nurse leaders and will improve patient quality and safety. Next, I will discuss how the DNP project meets the ethical principle of autonomy.

Autonomy refers to the right of a person to choose and follow their plan of life and action. The DNP project met the definition of autonomy by allowing the nurse leaders to volunteer for the skills and procedure class. All leaders chose to attend as they felt it would

benefit them to improve their skills before potentially taking a patient assignment. Next, I will discuss how the DNP project meets the ethical principle of veracity.

Beneficence refers to doing good. The DNP project aligns with the definition of beneficence by preparing nurse leaders to take or assist in taking a patient care assignment during a crisis, leading to improved safety and quality of care.

Veracity refers to truthfulness. The Merriam-Webster dictionary defines veracity as conformity with truth or fact (Merriam-Webster, 2021). During the project, I was careful to be accurate in my accounts describing the proposed and implemented intervention to crucial stakeholders, including my DNP chair, second chair, organizational leadership, the project participants, manuscript recipients, co-workers, educators, and colleagues. Much depends on the project write-up being truthful and accurate. Finally, I will discuss how the DNP project meets the ethical principle of justice.

Justice refers to the principle requiring that all people be treated equally and fairly. During the project's proposal stage and implementation, care was taken to ensure that participants were treated equally and fairly. All nurse leaders were given equal opportunity to participate, and participants received the same intervention. If participants wanted more time, so the class was designed so they could repeat a section of the skills and procedure class. All participants reported an improvement in their perception of self-efficacy. In addition to ensuring that the DNP project met the ethical principles of beneficence, autonomy, veracity, and justice, care was also taken to ensure psychological safety.

Clark (2020) refers to psychological safety as a condition in which human beings feel safe to challenge the status quo, safe to contribute, included, and safe to learn without fear of being punished in some way, marginalized, or embarrassed. First,

the educators who contributed to the curriculum development of the project's intervention needed to feel that their contributions provided value and to be comfortable speaking up about any concerns. Evidence that the educators had the psychological safety to speak up was evident in the early development stage of the skills and procedure class. Several educators spoke powerfully about their opinions. After a comprehensive and iterative process, the team moved forward with a curriculum based on evidence from the literature and input from their subject matter expertise, with all members actively participating. The psychological safety of the participants was also carefully ensured by creating and maintaining a learning environment where participants could feel comfortable being honest about the level of self-efficacy before the intervention and feeling supported while participating in the intervention. Psychological safety was accomplished through small group participation and, if needed, individualized teaching.

## Section IV: Results

A convenience sample of sixty-four nurse leaders who attended the skills and procedure class agreed to participate in the study and completed the pre-and post-survey. Not all participants ranked each task, which accounts for the different sample sizes.

There was a statistically significant improvement ( $p = < 0.05$ ) for seven out of the nine tasks and an increase in the post-mean scores compared to the pre-mean scores in all nine areas. Seven out of nine domain-specific tasks demonstrated significant change except for KPHC resources ( $p < 0.190$ ) and glucometer ( $p < 0.127$ ). This finding was attributed to some nurse leaders having experience using KPHC resources and a glucometer. Nurse leaders reported a moderate to high perceived self-efficacy on the pre-survey for these skills and procedures (pre-glucometer = 80.03 and pre-KPHC resources = 68.76). Results for all nine skills and procedures are shown in Appendix L: Domain-specific self-efficacy paired samples test.



## **Section V: Discussion**

### **Summary**

Domain-specific self-efficacy refers to how individuals feel about performing a specific skill and procedure such as those taught in the class (Louthans & Youssef, 2007). Before participating in the class, nurse leaders expressed their apprehension about providing or providing direct patient care during a COVID-19 patient surge. By participating in the skills and procedure class, nurse leaders significantly improved their perceived self-efficacy to perform crucial patient care tasks, suggesting substantial value in providing this training.

### **Interpretation**

Positive nurse leader perception of domain-specific self-efficacy bolsters safe patient care and quality outcomes. The NLTSET can be used to identify areas of nurse leader practice improvement and skills development. The instrument offers ease of use and requires only a few minutes to complete. New equipment and changes to procedures based on evidence-based practices demand updated skills. The NLTSET can quickly assess domain-specific self-efficacy and modify it as needed to respond to new skill assessment needs.

Replication of this study using the same NLTSET instrument in multiple sites with larger sample sizes is recommended. Research comparing nurse leader domain-specific self-efficacy following skills and procedure classes delivered via different education modalities would contribute to designing practical and effective training for patient care readiness in the event of a patient surge.

### **Limitations**

Self-efficacy was measured pre-intervention and immediately post-intervention; no data were collected on sustained effects of the skills and procedure class or retention of

perceived self-efficacy improvements. The study assessed perceived self-efficacy and did not evaluate task performance or the relationship between perceived self-efficacy and task competency. Another limitation is the use of only one tool to measure self-efficacy. The project was conducted only in one facility.

### **Conclusions**

Nurse leaders' perceived self-efficacy, a measure of confidence in performing specific tasks, may impact safe patient care. Mean self-efficacy scores for identified skills and procedures increased post-training, and seven out of nine demonstrated statistically significant improvement. These findings suggest increased self-efficacy to perform specific tasks after participating in a simulation-based skill and procedure class. Simulation-based skills and procedure class to prepare nurse leaders to provide direct patient care was demonstrated to be a practical way to address concerns over a shortage of qualified nurses in the event of a patient surge such as that experienced during the COVID-19 pandemic.

## **Section VI: Funding**

Funding was made possible by donating supplies and materials from the local facility where the intervention was conducted. No additional funds were required for the implementation of this project.

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- Watson, J. (2008). *Nursing. The philosophy and science of caring*. Boulder, CO: University Press of Colorado



## Appendices

### Appendix A

#### Evaluation of Evidence Table

Purpose of Article or Review	Design/ Method	Sample/ Setting	Conceptual Framework	Findings	Conclusions	Critical Appraisal Tool and Rating
Bragard, I., Seghaye, M., Farhat, N., Solowianiuk, M., Saliba, M., Etienne, A., & Schumacher, K. (2018). Implementation of a 2-Day simulation-based course to prepare medical graduates in their first year of residency. <i>Pediatric Emergency Care</i> , 34(2), 857-861. <a href="https://doi.org/10.1097/PEC.0000000000000930">https://doi.org/10.1097/PEC.0000000000000930</a>						
A longitudinal study evaluated whether a two-day training program impacted perceived stress and self-efficacy in technical and non-technical skills.	The authors measured intervention using a pre- and post-survey self-efficacy tool three times: before, after, and six weeks after the course.	Eleven pediatric and five emergency medicine residents. University Hospital of Liege, Liege, Belgium.	None noted	The authors found that their class reduced the stress perceived by the participants and improved the residents' self-efficacy. There was a statistically significant improvement in self-efficacy right after the training ( $p < 0.001$ ), at six weeks ( $p < 0.001$ ).	The course improved perceived stress and self-efficacy in technical skills and non-technical skills.	Level: 3  Quality: A (mixed methods)  Limitations: sample size = 16
Coppens, I., Verhaeghe, S., Van Hecke, A., & Beeckman, D. (2018). The effectiveness of crisis resource management and team debriefing in resuscitation education of nursing students: a randomized controlled trial. <i>Journal of Clinical Nursing</i> , 27(1-2), 77-85. <a href="https://doi.org/10.1111/jocn.13846">https://doi.org/10.1111/jocn.13846</a>						
To explore whether integrating a course on crisis resource management	A randomized controlled trial. Participants in the intervention	N = 116; Belgium nursing undergraduate students	None noted	The intervention group of 60 students increased self-efficacy (2.13%, $p = .02$ ) and team efficacy (9.92%, $p < .001$ ); the	Combining the course and simulation proved more effective in improving self-efficacy than having no course.	Level: I  Quality: A

Purpose of Article or Review	Design/ Method	Sample/ Setting	Conceptual Framework	Findings	Conclusions	Critical Appraisal Tool and Rating
principles and team debriefings in simulation training increases team efficacy, self-efficacy, and technical skills.	group ( $n = 60$ ) completed a course on crisis resource management principles, followed by a simulation training session, a team debriefing, and a second simulation training session. Participants in the control group ( $n = 56$ ) only completed two simulation training sessions.			control group of 56 students only improved team efficacy (4.5%, $p = .001$ ).		
Johnson-Toro, S. (2017). <i>Preparing Public Health Nurses for Disaster: Increasing Self-Efficacy &amp; Standardization</i> . California Baptist University.						
To examine how preparing public health nurses (PHNs) for	Quantitative methods to measure <b>disaster self-</b>	Sample: 16 PHNs Setting: Riverside	Self-efficacy (A. Bandura)	Sample t-test results: $t(16) = -10.68$ , $p < .001$ , SD 10.70, df 15, and Sig. (2-tailed) = .000 there is a	PHNs who participated in the DNP project improved their disaster through participation in the training.	Level: III  Quality: B

Purpose of Article or Review	Design/ Method	Sample/ Setting	Conceptual Framework	Findings	Conclusions	Critical Appraisal Tool and Rating
disaster can improve standardization and self-efficacy	<b>efficacy</b> for PHNs. Measured using pre-and post-training <b>survey</b>	County Department of Public Health (RCDOPH)		difference in pre and post-test results. All participants perceived an improvement in <b>disaster self-efficacy</b> .		
Jonson, C., Pettersson, J., Rybing, J., Nilsson, H., & Prytz, E. (2017). <i>Short simulation exercises to improve emergency department nurses' self-efficacy for initial disaster management: Controlled before and after study</i> . Elsevier B.V. <a href="https://doi.org/10.1016/j.nedt.2017.04.020">https://doi.org/10.1016/j.nedt.2017.04.020</a>						
To study whether computer-based simulation training can increase emergency department charge nurses' initial incident management skills and specific and general self-efficacy.	A quantitative experimental method with a within-group design to study whether computer-based simulation training can increase emergency department charge nurses' initial incident management skills and specific and general self-efficacy. The authors used a	13 charge nurses; Center for <b>Disaster</b> Medicine and Traumatology, Linköping University, Sweden	Self-efficacy (A. Bandura)	The authors found training improved the charge nurses' general but not their specific self-efficacy.	Computer-based simulation training provided opportunities for charge nurses to increase their general self-efficacy.	Level: III  Quality: B  Limitation: sample size



Purpose of Article or Review	Design/ Method	Sample/ Setting	Conceptual Framework	Findings	Conclusions	Critical Appraisal Tool and Rating
To explore how a conventional class compared to a scenario-based simulation class in communication training affected nurses' self-efficacy, performance, and communication competency.	A randomized control trial and analysis of covariance were used to determine between-subjects effects on communication competency and self-efficacy.	A convenience sample of 116 nurses; University Taiwan	Self-efficacy	After measuring the intervention using a pre- and post-survey, both the conventional class and the scenario-based simulation improved nurses' self-efficacy, performance, and communication competency. However, evidence suggests that scenario-based training provides more substantial improvements.	<b>Simulation-based training</b> can improve nurses' communication self-efficacy and performance.	Level: II Quality: A
McLaughlin, J. E., Amerine, L. B., Sheh-Li Chen, Luter, D. N., Arnall, J., Smith, S., Roth, M. T., Rodgers, P. T., Williams, D. M., & Pinelli, N. R. (2015). Early clinical experiences for second-year student pharmacists at an academic medical center. <i>American Journal of Pharmaceutical Education</i> , 79(9), 1-8. <a href="https://doi.org/10.5688/ajpe799139">https://doi.org/10.5688/ajpe799139</a>						
To explore how exposing students to a Medication and Reconciliation Team (SMART) program can improve student learning.	Participants were randomly selected from volunteers, given program training, and scheduled for three 5-hour evening shifts. Pre/post surveys and	Twenty-two second-year student pharmacists at the University of North Carolina (UNC) Eshelman	Experiential learning. Based in part on the work of Kolb.	Results from the survey show improvement in student self-efficacy (p-0.05) and positive perceptions of SMART.	The training program increased student appreciation of pharmacists' multiple roles, and early participation in clinical training improves students' development and learning.	Level: III Quality: B

Purpose of Article or Review	Design/ Method	Sample/ Setting	Conceptual Framework	Findings	Conclusions	Critical Appraisal Tool and Rating
	reflection statements were collected. Data were analyzed with a mixed-methods approach.	School of Pharmacy				
Mohatt, N. V., Boeckmann, R., Winkel, N., Mohatt, D. F., & Shore, J. (2017). Military mental health first aid: development and preliminary efficacy of a community training for improving knowledge, attitudes, and helping behaviors. <i>Military Medicine</i> , 182(1), e1576-e1583. <a href="https://doi.org/10.7205/MILMED-D-16-00033">https://doi.org/10.7205/MILMED-D-16-00033</a>						
To explore how adopting an evidenced-based Mental Health First Aid (MHFA) program improved awareness of the mental illness, decreased stigma, and increased the confidence of the general population	Comparative outcomes study. 69 received the training, and 107 participated in the control group. Immediately before and after the class, four months after the	Sample: 176 community first responders  Setting: 4 Army National Guard armories	None noted	Participants experienced a meaningful and substantial improvement in stigma ( $p < 0.05$ , $\eta^2 = 0.16$ ), confidence ( $p < 0.05$ , $\eta^2 = 0.49$ ), knowledge ( $p < 0.05$ , $\eta^2 = 0.39$ ), behaviors ( $p < 0.05$ , $\eta^2 = 0.27$ ).	The comparative outcomes pilot study of MHFA and <b>military</b> indicates that the intervention can be spread to <b>community</b> -based <b>first</b> responders and the National Guard Armories.	Level: II  Quality: B

Purpose of Article or Review	Design/ Method	Sample/ Setting	Conceptual Framework	Findings	Conclusions	Critical Appraisal Tool and Rating
helping and the rate of referring those in need of help.	course, and 8 months after the class, the authors used a survey tool to measure stigma, awareness of resources, confidence in helping, beliefs related to seeking help, current utilization of mental illness resources.					
Smith, S., Farra, S., Dempsey, A., & Arms, D. (2015). <i>Preparing nursing students for leadership using a disaster-related simulation</i> . Lippincott Williams & Wilkins. <a href="https://doi.org/10.1097/NNE.0000000000000143">https://doi.org/10.1097/NNE.0000000000000143</a>						
To explore teaching whether a day-long disaster training class improved emergency preparedness self-efficacy.	Full-day hands-on disaster training experience. The evaluation included an	66 nursing students completed both the pre & post surveys; senior bacheloret	Disaster preparedness	An analysis of the pre-and post-survey that providing the class improved the mean scores decreased for every student from 148.92 (SD, 40.77) to 113.94 (SD, 33.40), indicating an increase in the perception	Creating competencies related to disaster planning will improve the quality and safety our nurses receive during a crisis.	Level: III Quality: B

Purpose of Article or Review	Design/ Method	Sample/ Setting	Conceptual Framework	Findings	Conclusions	Critical Appraisal Tool and Rating
	assessment of self-efficacy before and after training.	e program		of emergency preparedness self-efficacy.		
Sparks, J. L., Crouch, D. L., Sobba, K., Evans, D., Zhang, J., Johnson, J. E., Saunders, I., Thomas, J., Bodin, S., Tonidandel, A., Carter, J., Westcott, C., Martin, R. S., & Hildreth, A. (2017). Association of a surgical task during training with team skill acquisition among surgical residents: the missing piece in multidisciplinary team training. <i>JAMA Surgery</i> , 152(9), 818-825. <a href="https://doi.org/10.1001/jamasurg.2017.1085">https://doi.org/10.1001/jamasurg.2017.1085</a>						
To determine whether competencies improved using a more anatomically realistic simulation versus a traditional simulation mannequin or SimMan.	Pre-post intervention pilot study compared the gains in teamwork	15 Midlevel surgical residents at Wake Forest Baptist Medical Center	None noted	The more anatomically correct mannequin led to a higher gain in teamwork skills, as evidenced by the statistics (95% CI, -8.51 to 6.71 versus 95% CI, -1.70 to 0.49).	The authors concluded that using medium-fidelity anatomically correct mannequins was as effective as using deceased donors and a SimMan to improve teamwork skills.	Level: III Quality: B



## Appendix B

### Patient Care Tasks for Nurse Leaders

Task	Description and objective
Alaris	The nurse can safely program the Alaris pump to administer intravenous (IV) medications.
CADD	The nurse can safely program the Continuous Ambulatory Delivery Device (CADD) pump used to relieve pain.
Glucometer	The nurse can monitor the patient's glucose (blood sugar) level by safely using the glucometer. The glucometer test results help the nurse determine the correct amount of insulin to administer to the patient.
KPHC/Brain Video	KPHC is the hospital's electronic patient medical record. The brain is a tool located in KPHC. Effective use of the brain helps the nurse to organize their work. The brain visualizes times when medications & labs are due and links nursing orders to appropriate documentation rows. Hence, nurses document in the correct place, group conditional orders together, and provide quick access to vital signs, allow nurses to view notifications for all their patients, including new lab results, overdue meds, and remind the nurse to reassess & document pain medication.
Bar Code Scan	They are attached to the computer where nurses' document in KPHC is a scanner used for medication and blood administration. The nurse needs to know when and how to use the scanner correctly.
KPHC Resources	Resources that aid the nurse to document in KPHC correctly the hospital's electronic patient medical record.
Scanning blood	They are attached to the computer where nurses' document in KPHC is a scanner used for medication and blood administration. The nurse needs to demonstrate the correct steps to deliver blood safely.
HAMP	High alert medication program. The nurse must demonstrate how to safely administer HAMP medications following correct independent double-check procedures with a qualified second nurse and correctly document.
BPAM (blood administration)	The nurse can safely demonstrate how to administer blood to the patient, which involves many necessary steps.

## Appendix C

### Signed Statement of Non-RDO Form



March 31, 2020

**Subject:** RDO KPNC 20 - 038  
**Title:** Preparing Nurses in Management Positions for Bedside Care During Times of Crisis

Dear Ms. Murray:

As a Research Determination Official (RDO) for the [REDACTED] region, I have reviewed the documents submitted for the above referenced project. The project does not meet the regulatory definition of research involving human subjects as noted here:

☒ Not Research

The activity does not meet the regulatory definition of research at 45 CFR 46.102(d):

Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

☐ Not Human Subject

The activity does not meet the regulatory definition of human subjects at 45 CFR 46.102(f):

Human subject means a living individual about whom an investigator conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information.

Therefore, the project is not required to be reviewed by [REDACTED] Institutional Review Board (IRB). This determination is based on the information provided. If the scope or nature of the project changes in a manner that could impact this review, please resubmit for a new determination. Also, you are responsible for keeping a copy of this determination letter in your project files as it may be necessary to demonstrate that your project was properly reviewed.

Provide this approval letter to the Physician in Charge (PIC), your Area Manager, and Chief of Service, to determine whether additional approvals are needed.

Sincerely,

[REDACTED]  
 Director  
 Research Compliance and IRB Administration  
 Financial Conflict of Interest Officer  
 [REDACTED]

## Appendix D

## Organization Letter of Support

[REDACTED]

KT Waxman, DNP, MBA, RN, CNL, CENP, CHSE, FAAN  
Director, Executive Leadership DNP Program  
School of Nursing and Health Professions  
University of San Francisco  
2130 Fulton Street  
San Francisco, CA 94117-1080

August 30, 2020

Dear Dr. Waxman:

This is a letter of support for Trevor Murray to implement his DNP Comprehensive Project:  
*Preparing Nurses in Management Positions for Bedside Care During Times of Crisis* at [REDACTED]  
[REDACTED] Medical Center.

Please do not hesitate to contact me with any questions.

Sincerely,

[REDACTED]

[REDACTED] MBA, BSN, RN, NEA-BC  
Chief Nurse Executive

[REDACTED]

## Appendix E

## Nurse Leader Training Self-Efficacy Tool

Created By Trevor Murray on March 20, 2020

**Instructions:** Please rate how certain you are that you can do the things discussed below by writing the appropriate number. Your answers will be **kept strictly** confidential and will not be identified by name.

Your participation **in this study is voluntary**. Thank you.

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0	10	20	30	40	50	60	70	80	90	100
Not Confident				Moderately Confident				Highly Certain		
Cannot do at all				Can do				Can do		

**Confidence  
(0-100)**

**Nursing Skill/Procedure**

- |                                  |       |
|----------------------------------|-------|
| 1. Alaris Pump                   | _____ |
| 2. CADD pump                     | _____ |
| 3. Glucometer                    | _____ |
| 4. KPHC/Brain Video              | _____ |
| Bar code scanning                | _____ |
| KPHC resources                   | _____ |
| Scanning blood                   | _____ |
| 5. High Alert Medication Program | _____ |
| 6. Blood administration (BPAM)   | _____ |

Ability to provide direct patient care  
at the level you work (M/S, Tele, ICU, Rehab) \_\_\_\_\_

Appendix F  
Gap Analysis

Reference Number	Item	Current State (before May 2020)	Desired State	Assigned To	Action Item	Priority	Risks	Complete
1	No comprehensive education for quality R.N.s and nurses who work in management roles to prepare them to assist at the bedside	Annual refresher education classes are available but not tailored to the needs of the nurse manager	Create a skills lab & procedure class that will improve the self-efficacy of the nurse managers preparing to assist or provide direct patient care	Clinical Education Department	create skills lab & procedure class	High	Time constraints and competing priorities	Yes
2	No comprehensive education for outpatient R.N.s & LVNs to prepare them to assist or provide direct patient care in the inpatient setting	Out-patient RNs have not received training to provide care to inpatients	Create a skills lab & procedure class that will improve the self-efficacy of outpatient R.N.s preparing to assist or provide direct patient care in the inpatient setting	Clinical Education Department/Trevor Murray	create skills lab & procedure class for outpatient R.N.s	High	Time constraints and competing priorities	Yes

3	No comprehensive education for outpatient Medical Assistants to prepare them to act as Patient Care Technicians (PCTs) in the acute care setting	Outpatient Medical Assistants have not received training to provide care to inpatients	Create a skills lab & procedure class that will improve the self-efficacy of outpatient M.A.'s preparing to assist or deliver PCT level of care	Clinical Education Department/Trevor Murray	create skills lab & procedure class for Medical Assistants	High	Time constraints and competing priorities	yes
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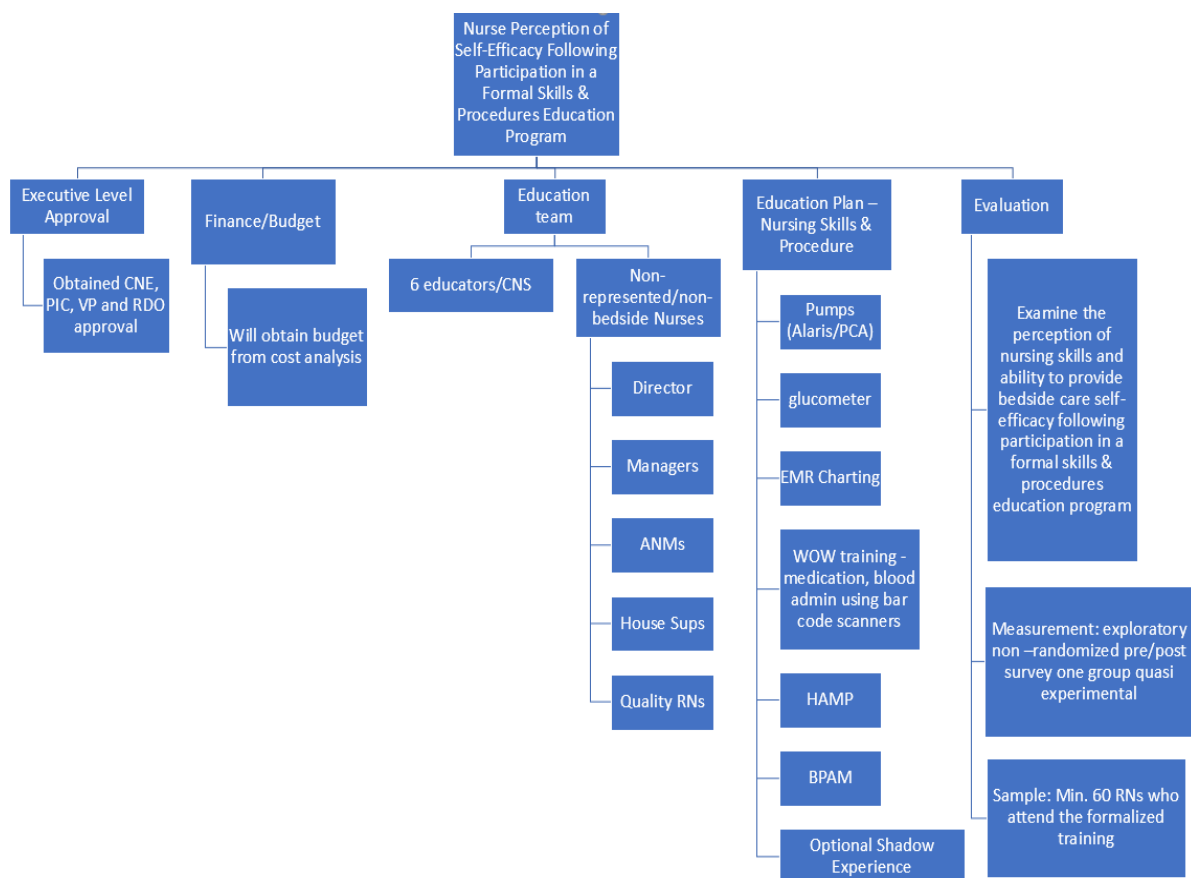


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## Appendix H

### Work Breakdown Structure



## Appendix I

## Responsibility/Communication Matrix

Communication Type	Deliverable	Description	Delivery Method	Frequency	Owner
Meeting	Establish approval for the DNP project. Present monthly updates on the project	Project introduction, updates & timelines	In-Person & Virtual Teams	Monthly	T. Murra
Meeting	Present project agenda and goals	Project introduction. updates & timelines	In-Person & Virtual Teams	weekly	T. Murra
Meeting	Present project agenda and goals	Meet with team to discuss the project	In-Person & Virtual Teams	Monthly	T. Murra
Meetings/Email	Project Plan & Timeline	Discussion on the progress of the project	Zoom Meetings	monthly and Ad Hoc	T. Murra
Email	Project Plan & Timeline	Discussion on the progress of the project	Email	As needed/Defined by DNP Chair	T. Murra

## Appendix J

## SWOT Analysis

Strengths	Weaknesses
Organizational support resources available  participant support/interest call for improved patient safety	Gaps in my team of educators High census/gaps in staffing Other work priorities overshadow the project
Opportunities	Threats
External pressure to increase qualified staffing Call for innovative ways to prepare nurses for surge	time - patient surge could occur social distancing - space to conduct the intervention

## Appendix K

## Budget and Financial Analysis

Pro Forma and Return on Investment

Return on Investment Ratio  $\$2,748,000/\$214,620 = 12.80$ 

<b>Skills &amp; Procedures Class</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Total Revenue (cost avoidance)</b>
<b>REVENUE/Cost avoidance</b>				
Cost avoidance of nurse leader Turnover – Assuming training and recruitment of four (4) nurse leaders	\$ 474,000	\$474,000	\$474,000	\$1,422,000
Cost of traveler	Cost of 1 traveler: \$175/hour low rate to \$250/hour high rate = average \$212.50/ hour or \$442,000.00 annually	\$442,000	\$442,000	\$1,326,000
<b>Total revenue/cost avoidance</b>	\$ 916,000	\$ 916,000	\$ 916,000	\$2,748,000
<b>EXPENSES</b>				
<b>Salaries and Wages</b>				<b>Total Expenses</b>
Director of Clinical Education  \$107.00/hr. x 120 hours	\$12,840	\$12,840	\$12,840	\$38,520
Nurse Educators	\$ 48,000	\$ 48,000	\$ 48,000	\$144,000

\$80.00/hr. x 5 educators x 120 hours				
<b>Subtotal S/W</b>	\$60,840	\$60,840	\$60,840	\$182,520
<b>Supplies Expense (posters, wipes, sanitizer, training materials, etc.)</b>				
Sani-cloth wipes	\$ 200	\$200	\$200	\$600
Posters	\$ 100	\$100	\$100	\$300
Hand sanitizer	\$ 250	\$250	\$250	\$750
Alaris pump tubing, CADD pump tubing	\$ 400	\$400	\$400	\$1200
<b>Subtotal supplies</b>	\$950	\$950	\$950	\$2850
<b>Equipment</b>				
Alaris pumps	\$3000	\$3000	\$3000	\$9000
CADD pumps	\$2500	\$2500	\$2500	\$7500
Glucometers	\$750	\$750	\$750	\$2250
Computers w/bar code scanners (covers KPHC, HAMP, and BPAM)	\$3500	\$3500	\$3500	\$10500
<b>Subtotal equipment</b>	\$9750	\$9750	\$9750	\$29,250
<b>Total revenue/cost- avoidance</b>	\$ 916,00 0	\$ 916,00 0	\$ 916,00 0	\$2,748,00 0
<b>Total expenses</b>	\$71,540	\$71,540	\$71,540	\$214,620
<b>Total revenue or cost- avoidance– expenses (profit)</b>	\$844,460	\$844,460	\$844,460	\$2,533,38 0

Assumptions:

- assumes an average hourly rate of:
  - educators are \$80/hr
  - DCEPI is \$107/hr
- assumes benefits at 50%
- assumes the cost of nurse leader turn-over is \$118,500 (recruitment and training)
- assumes not using a traveler

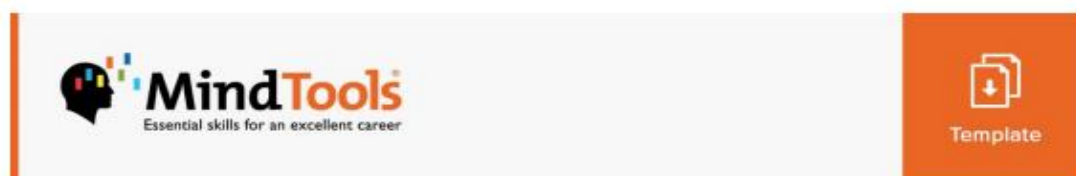
## Appendix L

## NLTSET Results: Domain-specific self-efficacy paired samples t-tests

Task	N	Pre-mean score	Post-mean score	Significance
Pair 1 Pre-Alaris Pump	64	58.6	84.0	.000
Post Alaris Pump	7		39	
Pair 2 Pre-CADD Pump	61	29.3	78.0	.000
Post-CADD Pump	4		3	
Pair 3 Pre-Glucometer	62	80.0	92.2	.127
Post-Glucometer	3		6	
Pair 4 Pre-Brain Video	54	32.0	74.3	.000
Post-Brain Video	4		5	
Pair 5 Pre-Bar Code Scan	50	67.5	84.0	.001
Post-Bar Code Scan	0		8	
Pair 6 Pre-KPHC Resources	63	68.7	88.5	.186
Post- KPHC Resources	6		7	
Pair 7 Pre-Scanning Blood	59	47.6	70.4	.000
Post-Scanning Blood	3		2	
Pair 8 Pre-HAMP	61	46.5	80.1	.000
Post-HAMP	6		5	
Pair 9 Pre-BPAM	60	43.6	68.3	.000
Post-Brain Video	7		3	

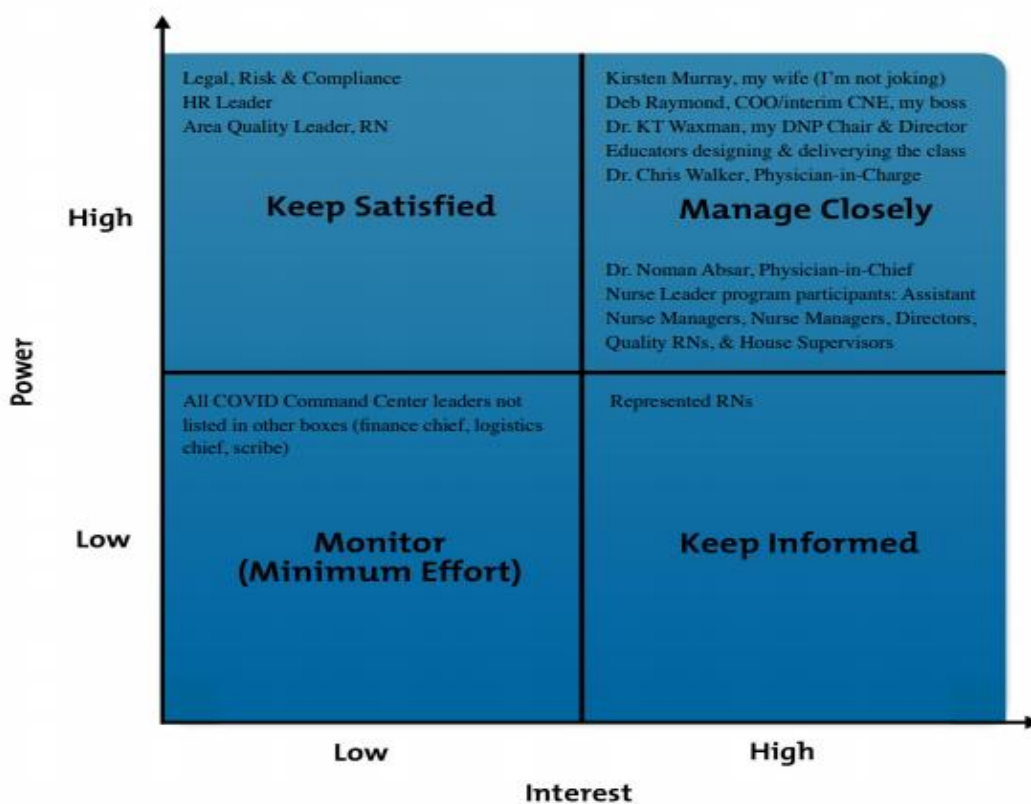
## Appendix M

### Power/Interest Grid for Stakeholder Prioritization



### Power/Interest Grid for Stakeholder Prioritization

- For instructions about stakeholder analysis, visit [www.mindtools.com/rs/StakeholderAnalysis](http://www.mindtools.com/rs/StakeholderAnalysis).



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Adapted from Mendelow, A.L. (1981) 'Environmental Scanning - The Impact of the Stakeholder Concept,' ICIS 1981 Proceedings, Paper 20.

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